



CURRENT ADVANCES IN THE PRE-SURGICAL EVALUATION OF EPILEPSY USING HIGH FREQUENCY OSCILLATIONS

Organizers

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Introduction

In spite of the continuous development of new drugs that target molecular mechanisms responsible for generating epileptic seizures, approximately 25% of the patients with epilepsy are proven medically resistant. These patients should be evaluated for surgery to remove the area responsible for generating the attacks referred to as the epileptogenic zone (EZ). Surgical outcomes strongly depend on the accuracy of the recognition of the EZ, which is currently identified using a potential range of diagnostic tests. In such cases, long-term intracranial electroencephalogram (iEEG) monitoring is used to correctly characterise the seizures and establish the surgical approach. iEEG monitoring has however its limitations, which are mainly found in its invasiveness, cost and the limited spatial sampling - i.e. the chance to record activity propagated from other close areas and not originated where electrodes are placed. To date, this results in a significant number of patients continuing to experience postsurgical seizures.

Short description

During the last few years, high-frequency oscillations (HFOs above 80 Hz) have emerged as a new promising biomarker in pre-surgical diagnosis of epileptogenicity. Indeed, recent studies have shown that the resection of the tissue generating HFOs improves surgical outcome in patients with medically refractory epilepsy (MRE).

One of the limitations to a more widespread use of this biomarker is the inherent difficulty in its detection using non-invasive methods.

Objectives and Outline

This workshop aims to present the latest trends in the interaction between academic, clinical and industrial partners to produce a step-change in our ability to detect and quantify HFOs using invasive or non-invasive modalities like EEG and MEG, as well as their role in epileptogenicity.